

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 March 2001 (01.03.2001)

PCT

(10) International Publication Number
WO 01/14128 A1

(51) International Patent Classification: **B29D 28/00**,
B29C 70/38, C08J 9/228, B29C 44/02

(21) International Application Number: PCT/GB00/03279

(22) International Filing Date: 24 August 2000 (24.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
9920071.9 24 August 1999 (24.08.1999) GB

(71) Applicant (for all designated States except US): **CRANFIELD UNIVERSITY** [GB/GB]; Cranfield, Bedfordshire MK43 0AL (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MILLS, Andrew** [GB/GB]; School of Industrial and Manufacturing Sciences, Cranfield University, Cranfield, Bedfordshire MK43 0AL (GB). **COUSINS, Steven** [GB/GB]; School of

Industrial and Manufacturing Sciences, Cranfield University, Cranfield, Bedfordshire MK43 0AL (GB). **BATEUP, Lee** [GB/GB]; School of Industrial and Manufacturing Sciences, Cranfield University, Cranfield, Bedfordshire MK43 0AL (GB). **BACKHOUSE, Robert** [GB/GB]; School of Industrial and Manufacturing Sciences, Cranfield University, Cranfield, Bedfordshire MK43 0AL (GB).

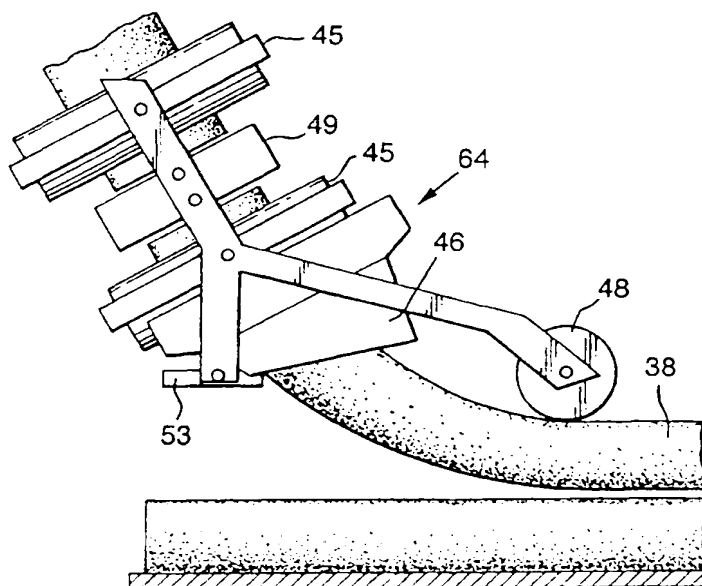
(74) Agents: **HARRISON, David, C.** et al.; Mewburn Ellis, York House, 23 Kingsway, London WC2B 6HP (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: REINFORCED NODAL STRUCTURE, REINFORCEMENT WITH A CORE OF EXPANSIBLE MATERIAL AND METHOD OF MOULDING AN ARTICLE



(57) Abstract: A machine and method for moulding a composite of complex nodal structure includes laying down under CNC a reinforcement (38) of constant cross-section repeatedly into and along channels (26) of a mould (24) and through nodes of the structure, closing the mould, impregnating it with resin and curing the resin.

WO 01/14128 A1



IT, LU, MC, NL, PT, SE). OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *With international search report.*
- *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*